Castilleja linariifolia

Castilleja

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Telltale Lichens

If lichens were soap opera characters, they would be dismissed as unbelievable. One of the same lichens allegedly used to poison wolves and foxes in the Old World is now among our best biological indicators of air quality conditions in Wyoming.

Letharia vulpina (wolf lichen) and *Usnea lapponica* (Lapland beard lichen) are two common montane lichens. These epiphytic (tree-dwelling) lichens make great indicators of pollutants because: "… they receive their nutrients mainly from the atmosphere, lack regulatory structures such as stomata and a cuticle, and are sensitive to acidifying and fertilizing pollutants (summarized in McMurray et al. 2013).

Their accuracy at indicating nitrogen deposition was evaluated in four drainages of the Wind River Range (Bridger-Teton National Forest). They were sampled from tree trunks and their dry weight nitrogen values were compared to nitrogen canopy throughfall measurements from passive precipitation collectors at the same sites. Nitrogen concentrations in the lichens correlated directly with those measured in collectors (McMurray et al. 2013). This correlation allows lichens to be used as an economical alternative to hauling, installing, and re-visiting collectors.

What else did the lichens tell us? Results were used to establish maximum Critical Load (CL) levels for the two indicator species in the region (<4.0 kgha^{-1} year^{-1}) as the threshold at which they are visibly yellowing or bleached, stunted or deformed. They indicated that nitrogen concentrations decreased exponentially with distance from drilling activity. Only one of the four drainages, the Boulder watershed, exceeded Critical Load levels (McMurray et al. 2013).

In an associated study of 68 stratified plots, over 100 epiphytic lichen species were documented, and associated nitrogen concentrations were measured for *Usnea lapponica* and/ or *Letharia. vulpina*. Data were used to place each species into categories of relatively sensitive or insensitive to nitrogen levels, and to ordinate their distribution by a gamut of climate parameters to indicate not only their response to nitrogen levels, but also to high and low precipitation levels and temperature levels. The results have been used to produce models for tracking nitrogen levels and climate conditions as reflected in lichen communities over time, and to identify habitats that may be sensitive or impacted (McMurray et al. 2014).

Above: Wolf lichen (*Letharia vulpina*) is an iridescent, yellowish-green lichen that grows on trees in mountains across Wyoming. Photo by Jill McMurray.

References: (Editor's note: This article is extracted from the following.)

McMurray, J.A., D.W. Roberts, M.E. Fenn, L.H. Geiser and S. Jovan. 2013. Using epiphytic lichens to monitor nitrogen depositon near natural gas drilling operations in the Wind River Range, WY, USA. Water Air Soil Pollution 224: 1487. Downloadable at http://www.treesearch.fs.fed.us/pubs/44538

McMurray, J.A., D.W. Roberts and L.H. Geiser. 2014. Epiphytic lichen indication of nitrogen deposition and climate in the northern rocky mountains, USA. Ecological Indicators 49: 154-161.

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WYNPS News

Re-Newing: What's important to you? The New Year is a great time to reconnect with your priorities. If they include Wyoming plants and landscapes, please consider renewing your membership to Wyoming Native Plant Society. If you look at the newsletter mailing label, it shows the year through which your membership is paid. To renew, either go to the homepage (http://www.wynps.org) and use PayPal, print the form at the homepage, or use the insert in this newsletter. *Thanks!!*

2015 Annual Meeting: Two Sides of the Tetons!
July 10-13, 2015 is the joint annual meeting of the Wyoming and Idaho Native Plant Societies, centered in Driggs, ID. It will feature field trips to both the east and west slopes of the Tetons. Trips will range from easy walks to all-day, strenuous hikes and include chair lift rides for tours of high alpine areas.
Our basecamp will be a Forest Service group campground in Teton Canyon that has been reserved for the weekend. It can accommodate both RVs and tents. There are numerous other camping options in the canyon. There are a small number of cabins near Driggs that can be reserved at Teton Valley Cabins (208.354.8153. www.tetonvalleycabins.com) – they fill up quickly so reserve soon if you want one! The dinner meeting will be held in Driggs the evening of Saturday, July 11 @ the Senior Center. Mark your calendar and reserve the weekend for an alpine adventure! Field trip info and registration will be on the Idaho Native Plant Society homepage (http://www.idahonativeplants.org/inps/AnnualMeeting.aspx) (cc: WY links) and look for further newsletter announcements.

Wyoming Native Plant Society
P.O. Box 2449
Laramie, WY 82073

Treasurer's Report: Balance as of 24 Nov 2014: Scholarship = $1,073; General = $5,622.32; Total = $6,695.32.

The Next Deadline: Please send articles and announcements for the March issue by 15 February. Ideas are welcome any time!

Contributors to this Issue: Ann Boelter, Robert Dorn, Bonnie Heidel, Julie Kraft and Dorothy Tuthill.

New Members: Please welcome the following new members to WYNPS: Kenneth Burke, Cheyenne; Kat McConnell, Pinedale; Nancy Miller, Viola, ID; Kelly Strampe, Green River.

Message from the President: 'Tis the season…

For skiing, snow shoeing, hauling firewood, and sitting by the fire with a good book. After an exceptionally cold, but dry, November, I'm looking forward to snowfall, hopefully enough that I'm forced to miss a day or two of work. The books have been accumulating all summer (much deeper than the snow), so the need for some reading days is great.

I admit it's not the best season for botanizing, but it is a good time to identify, label and organize all those specimens and photos from the summer. And, it's a good time to make plans for next summer's botanizing (See you in the Tetons in July!!), field trips, and general outdoor activities, including gardening. Which brings me to my most important winter gardening task—planting wildflower seeds for next year's garden. I'll put them in pots in a nice cold spot protected from the wind, and imagine how the garden will look come June. Not that there's room for any more plants in my flower garden—but that's a problem that can wait for spring!

Best wishes for a happy, wintery holiday season!

Dorothy

WYNPS Board – 2014

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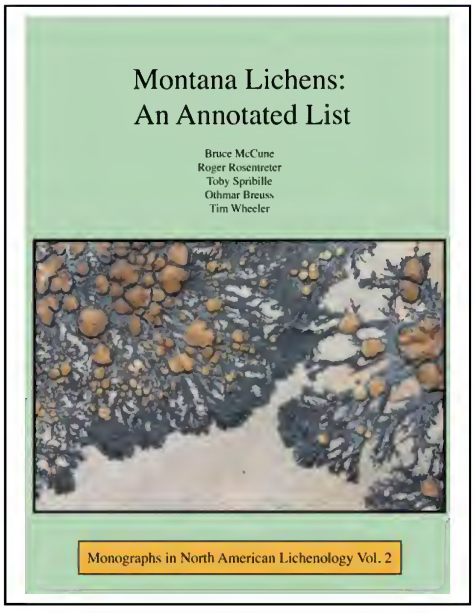
Publication Announcements

McCune, B., R. Rosentreter, T. Spribille, O. Breuss and T. Wheeler. *Montana Lichens: An Annotated List*. Monographs in North American Lichenology Vol. 2. Northwest Lichenologists, Corvallis, OR. Paperback. 183 pp. $30 + shipping. Available from: http://northwest-lichenologists.wildapricot.org/ . The following text is reprinted from this homepage:



Why would a non-Montanan want this book? It is the first comprehensive summary of the occurrence, literature references, and ecological context for lichens in any state or province in the Pacific Northwest or northern Rocky Mountains. Because we also include reports from adjoining states and provinces, the book should be useful in a broad area. The monograph will be an invaluable reference for people delving into crustose lichens.

So far, a total of 1074 species are documented from Montana. Of these, 283 species are new for the state and 19 are new to North America. We discuss the rare, threatened, and endangered lichens of Montana. Priorities for surveys and monitoring are evaluated by placing species in one of eight categories, based on all combinations of global rarity, ease of detection, and habitat vulnerability.

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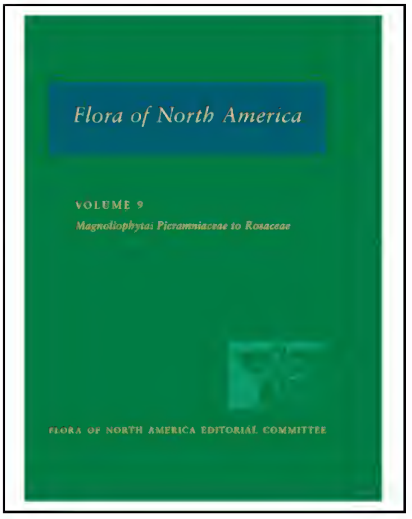
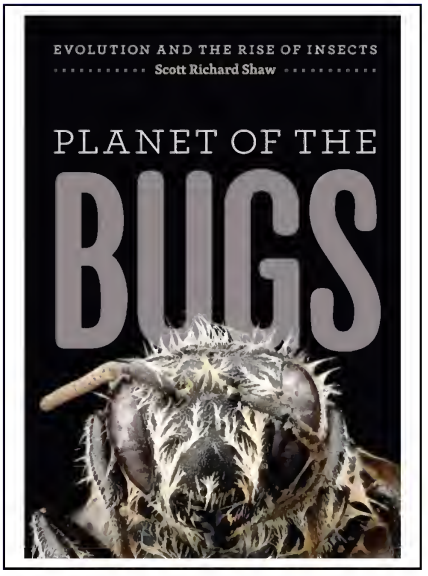
Flora of North America Editorial Committee. 2014. *Flora of North America, North of Mexico. Volume 28: Bryophyta, Part 2*. Oxford University Press, New York, NY. +xxi + 702 pp. 978-0-19-020275-0 | Hardcover.

Now available, this is the second of two bryophyte volumes that together offer the first unified bryology treatise from the past 50 years of bryology in North America.



Flora of North America Editorial Committee. 2014. *Flora of North America, North of Mexico. Volume 9: Magnoliophyta: Picramniaceae to Rosaceae*. Oxford University Press, New York, NY. + 752 pp. – Revisionary treatment in the Rose Family and allies. Pre-orders are being taken. It is expected out sometime in December.

Both of these new FNA volumes, Vol. 9 and 28, cost $95 + shipping, and are available through Oxford University Press: https://global.oup.com/academic/product/flora-of-north-america-9780195340297?cc=us&lang=en&



Shaw, S. R. 2014. *Planet of the Bugs: Evolution and Rise of Insects*. University of Chicago Press, Chicago, IL. 256 pp. Cloth. $27.50 + shipping.

(Hint: There's some botany lurking in insect evolution.)

It is available thru: www.press.uchicago.edu/ucp/books/book/chicago/P/bo18507885.html

Growing Native Plants
Part 14. Cacti

By Robert Dorn

Cacti generally require a dry, sandy or gravelly location in full sun. They should not be given any supplemental water except during extreme drought when extra water will not harm them. The mature plants have no leaves. The stems are globose, cylindrical, or flat pads that are usually spiny. To see the plants in color, go to the Society website.

Coryphantha vivipara, Red Ballcactus, has a globose to cylindrical stem to 4 inches high and 3 inches across. Sometimes they form a crowded cluster of several stems. The flowers are bright pink or pinkish-red, up to 2 inches across, clustered at the top of the stem, and appearing from May to July. The plants occur naturally in open, sandy or gravelly areas of the plains and basins in the eastern half of Wyoming. They can be grown from seed lightly covered to allow light exposure. Although they transplant easily, they should not be dug up from their native habitat unless they are about to be destroyed by construction activities. It is also in the nursery trade.

Coryphantha vivipara, Goshen County

Editor's note: If you haven't taken a peak at *Castilleja* in full color, these cacti are the justification you need to go on-line! Go to: http://www.wynps.org

Echinocereus viridiflorus, Hedgehogcactus, has a cylindrical stem to 6 inches high and 3 inches across. They can also form a crowded cluster of several stems. The flowers are greenish-yellow to greenish, up to 2 inches across, and borne on the sides of the stem and appearing in May and June. The plants occur naturally in open gravelly areas in the plains and foothills of southeast Wyoming. They can be grown from seed lightly covered to allow light exposure. They transplant easily but should not be dug up from their native habitat except in the few areas where they are extremely abundant or are about to be destroyed by construction activities.

Echinocereus viridiflorus, Platte County

Opuntia macrorhiza, Sand Pricklypear, has flattened pads to about 8 inches tall with relatively few coarse spines. The flowers are yellow and up to 4 inches across appearing in May and June. The fruits lack spines and become red when mature contrasting

Opuntia macrorhiza, Goshen County

sharply with the green pads. The plants occur naturally in sandy and sometimes gravelly areas on the eastern plains of Wyoming. They can be grown from seed after 60 days cold stratification. Press the seeds lightly into a mix of 3 parts sand and 1 part loam. Also, the pads can be broken off, allowed to callus at the break, and then inserted into the soil mix. Water regularly until roots develop, usually in about 4 weeks. They also transplant readily.

Opuntia polyacantha, Plains Pricklypear, has flattened pads to about 7 inches tall with many spines. The flowers are yellow or sometimes deep pink or red and upto 4 inches across appearing from May to July. The fruits are spiny and rather unattractive. The plants occur naturally in dry, open areas of the plains, basins, and valleys on a variety of soils, especially where gravelly. They can be grown from seed or broken off pads in the same manner as for *Opuntia macrorhiza* outlined above. They also transplant easily.

Opuntia polyacantha, Custer County, Idaho

Pediocactus simpsonii, Simpson Ballcactus, has a globose stem to 4 inches tall and 6 inches across. The stems are sometimes in clusters. The flowers are yellowish-green, or pink to light purple, up to 1 inch across, clustered at the top of the stem, and appearing from May to July. The plants occur naturally in rocky or gravelly places in the plains, basins, and mountains. They can be grown from seed. They transplant easily but should not be dug up from their native habitat except when about to be destroyed by construction activities. They are also in the nursery trade.

Pediocactus simpsonii

Announcement:

The Biodiversity Institute has several items for sale for biodiversity enthusiasts!

For frog and toad fans, there is the Wyoming Amphibians Identification Guide ($2.50), the 2015 Amphibians of Wyoming Calendar ($10.00), and Rocky Mountain Amphibian Project T-shirts ($9.00).

For gardeners, there is Plants with Altitude ($8.00), a guide to approximately 60 species of regionally native plants that work well in Wyoming gardens, with advice on gardening in our harsh environment.

Coming in December: Wyoming's Stream Invertebrates. All can be purchased at wyomingbiodiversity.org/store/ or at the Berry Center.

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In addition, the following are available at no cost for classroom use:

- Wildflower Crossword Puzzle
- Insect Trivia Puzzle
- Leaf Shape Bingo Cards
- Key to Conifer Trees of Wyoming

Pinedale Waterwise Garden scenes, including (far left) June planting and (left) August display

Pinedale Waterwise Garden

Project of Sage and Snow Garden Club,
Sublette Chapter of the Wyoming Native Plant Society,
and the Town of Pinedale
by Julie Kraft

The Sage and Snow Garden Club was happy to begin ground work on our Pinedale Water Wise Garden after two years of planning. The project began with the treatment of the area for annual weeds. Then we coordinated with the Town of Pinedale for placement of irrigation and boulders. Volunteers painted the neighboring fence, placed pavers for the path though the garden, collected native plants from designated areas and planted them immediately into the garden and laid out the rest of the design with designated plant stakes On June 14th we planted all purchased and other donated plants into the garden. This was a fun day with lots of members and volunteers. By midafternoon the sprinklers were on and we treated ourselves to a late lunch! The garden was designed to have season-long color, and to demonstrate plants that are successful in our area with minimal soil amendments and water, attract pollinators, and withstand herbivory. The only amendment to the garden that we made was the addition of soil to replace the rocks that were pulled out of planting holes. The garden is designed to have year round interest, and it bloomed all summer. The native plants have done really well, and even the very smallest seedlings seem to be thriving. While we are optimistic after the great success of the garden's first summer, we know that the first winter will be a true test of survival. Permanent educational kiosks are being designed to provide onsite information on water wise gardening, pollinators, and native plants, and to identify and recognize the organizations that contributed to the project. A bench purchased from Main Street Pinedale will be placed in the garden as well. The project has had lots of positive comments since inception, and the Wyoming Federation of Garden Clubs Convention attendees toured the garden on June 27th. We hope that the Pinedale Water Wise Garden is enjoyed and used for many years to come as an educational resource for the community.

Thank you to the Wyoming Native Plant Society Markow Grant for supporting this educational demonstration project. The funds from the scholarship were used to purchase native plants for the garden. With your help we were able to include approximately 60 plant species (through donations and purchases), and the list continues to grow! We started our plant selection by compiling a list of plants that participants were willing to donate from their gardens. From that list, planners selected additional native plants that are commercially available or that we could find and dig in the wild. Plants were selected for season of bloom, color, attraction to pollinators, and water use. Some of the plants brought to the garden are experimental, in that they are beautiful, but we are not sure if they are going to persist in the garden. We planted a variety of

Penstemon and Primrose species, which are abundant in Sublette County, and have been successful so far. Plants of all developmental stages were planted in the garden. We had donated plants that were started from seed or split from parent plants that were so small they were in dixie cups. Almost all of those plants thrived in the garden this summer.

...We thank all our supporters and the many volunteers contributing their time and plant materials. You've got a standing invitation when you're in Pinedale!

(*A project of this size takes a lot of communication, organization, and attention to detail. We were able to include most of the conservation partners in our area and many volunteer organizations because of the good standing of the Sage and Snow Garden Club. Partners for this community project include the Sublette Chapter of the Wyoming Native Plant Society, the Town of Pinedale, the Sublette County Conservation District (through a Great Conservation Idea Grant), Sublette County BOCES, Main Street Pinedale, Wyoming Office of Tourism and numerous volunteers from the community.*)

Table 1. Pinedale Waterwise Garden Plants

Scientific Name	**Common Name**
Achillea millefolium	Yarrow
Achnatherum hymenoides	indian ricegrass
Allium schoenoprasum	wild chive
Antennaria neglecta	Raceme Pussytoes
Antennaria rosea	Rosy Pussytoes
Aquilegia coerulea	Blue Columbine
Arnica cordifolia	heartleaf arnica
Artemisia tridentata	big sage
Artemisia tridentata	Big sagebrush
Besseya wyomingensis	WY kittentails
Campanula rotundifolia	Harebell
Castilleja linariifolia	Wyoming paintbrush
Cerastium arvense	chickweed
Dalea candida	Antelope white prairie clover
Dalea purpurea	Bismarck Purple prairie clover
Dalea purpurea	Kenab purple prairie clover
Dasiphora fruticosa	Shrubby Potentilla
Delphinium occidentalis	larskpur
Dodecatheon pulchellum	Shooting star
Echinacea angustifolia	coneflower
Ephedra viridis	mormon tea
Ericameria nauseosa	rabbit brush
Erigeron compositus	Cutleaf Daisy
Eriogonum umbellatum	Sulphur Buckwheat
Fragaria vesca/virginiana	Wood Strawberry
Gaillardia aristata	Blanket Flower
Geranium viscosissimum	Wild Geranium
Geum triflorum	Prairie Smoke
Hedysarum boreale	Utah sweetvetch
Helianthus maximiliani	sunflower
Hymenoxys acaulis (Tetraneuris acaulis)	4 nerve daisy
Iliamna rivularis	wild hollyhock
Ipomopsis aggregata	Scarlet Gilia
Iris missouriensis	Iris
Leymus cinereus	Great Basin Wildrye
Linum perenne	Blue Flax
Lupinus argenteus	lupine
Oenothera caespitosa	White Evening Primrose
Oenothera flava	Yellow Evening Primrose
Oenothera macrocarpa	silver blade primrose
Oenothera pallida	mountain evening primrose
Penstemon arenicola	Sand penstemon
Penstemon angustifolius	Broadbeard penstemon
Penstemon cyananthus	Wasatch penstemon
Penstemon deustus	scabland penstemon
Penstemon eatonii	firecracker penstemon
Penstemon grandiflorus	prairie jewel penstemon
Penstemon palmeri	Palmer's penstemon
Penstemon procerus	Small-flowered Penstemon
Penstemon strictus	Rky Mt penstemon
Penstemon venustus	Venus penstemon
Penstemon whippleanus	Whipple's penstemon
Phacelia sericea	Silky Phacelia
Philadelphus lewisii	mock orange
Pseudoroegneria spicata	Bluebunch Wheatgrass
Ratibida columnifera	prairie coneflower
Ribes aureum	Golden Currant
Rudbeckia hirta	Black-eyed Susan
Sedum stenopetalum	Narrow-leaf Stonecrop
Shepherdia canadensis	Russet buffaloberry
Sphaeralcea coccinea	scarlet globemallow
Symphoricarpos albus	snowberry

Non-native alert: Cicer milkvetch

By Bonnie Heidel

Cicer milkvetch (*Astragalus cicer*; or chickpea milkvetch) was promoted for plantings in Wyoming for forage and erosion control, has been used in recent Wyoming highway plantings, is in plant materials trade, promoted for pollinators, and is on some Conservation Reserve Program lists of recommended plants. However, it has been observed spreading into native habitat beyond the zone of planting at opposite corners of the state, both mountains and plains. Here are recent observations of it spreading into native habitat:

1. Park Co., moist woods and wetland margins of Swamp Lake; planted directly above Swamp Lake for slope stabilization after 1988 fire.
2. Park Co., riparian forest along Clarks Fork River; unknown source – possibly highway on opposite side.
3. Laramie Co., open floodplain of Crow and Diamond creeks; unknown source – likely to be planted along one of two interstates or other hwys within 0.1-3 mi.

The hairy inflated fruits of Cicer milkvetch turn jet black when they mature. To see specimens, query at: http://www.rmh.uwyo.edu/data/search.php. If you have any other observations of it encroaching native Wyoming habitats, please collect a voucher and send information to the author.

Wyoming Native Plant Society is a non-profit organization established in 1981 to encourage the appreciation and conservation of the native plants and plant communities of Wyoming. The Society promotes education and research through its newsletter, field trips, annual student scholarship and small grants awards. Membership is open to individuals, families, or organizations. To join or renew, please return this form to:

Wyoming Native Plant Society
P.O. Box 2449
Laramie, WY 82073

Name: _____

Address: _____

_____

Email : _____

Check one: [ ] New member [ ] Renewing member

[ ] Renewing members, check here if this is an address change.

[ ] Check here if you prefer to receive the newsletter electronically

Membership

[ ] WYNPS annual membership: $10.00

[ ] WYNPS annual membership + scholarship support: $20.00 ($10.00 for membership and $10.00 for Scholarship fund)

[ ] WYNPS Lifetime membership: $300 ($150 for membership and $150 for Scholarship fund)

[ ] Sublette Chapter annual membership: $5.00

[ ] Teton Chapter annual membership: $5.00

Total enclosed:_____ THANK YOU!

Wyoming Native Plant Society

2015 MARKOW SCHOLARSHIP/SMALL GRANT

Applications are due 20 February 2015. Awards will be made in April, 2015.

Electronic copies of this application are also posted on the WYNPS homepage at: www.wynps.org

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The Wyoming Native Plant Society promotes appreciation, understanding and conservation of native plants and plant communities through its annual scholarship/small grants program. Thesis research may address any aspect of botany, including floristics, taxonomy, ecology, genetics, plant geography, range science, paleontology, pollination biology, physiology, and mycology. In addition, other projects such as botany curriculum development, public native plant gardens, and other forms of research will be considered.

Study or project proposals must pertain to native plants of Wyoming. Preference will be given to proposals expected to generate research data or promote public understanding. Up to $1,000 of expenses may be covered per proposal. *Awards defray direct project costs, excluding labor or conferences.* Eligible expenses include:

1) Direct costs of travel, meals, and lodging for research or education projects.
2) Supply and service expenses used for the sole purpose of the project (e.g., consumable supplies such as laboratory chemicals, soil and nursery stock, and services such as phone and computer time).

The deadline for proposals is February 20. The scholarship/grant competition is open to all graduate students, all residents of Wyoming and all members of WYNPS. **Awards will be announced in April.**

The proposal should be no longer than three pages and should include the following information:

- Contact person and organizational affiliation, as appropriate.
- Mailing address, telephone number, and email address.
- Short abstract of the study or project (2-5 sentences).
- Description of the study or project: objectives, methods, description of final product, and short description of past similar work (if applicable). Garden proposals should include plant lists, an educational component, and explicitly address long-term maintenance plans.
- Description of how the study or project will benefit native plant conservation in Wyoming.
- Overall budget showing amount requested from WYNPS ($1,000 or less) and the intended purpose of the funding, as well as other funding sources.
- Time frames for completion of the study or project.
- Brief statement of applicant's qualifications or biography.
- Name, address, email address or phone number of two people as references.

Successful scholarship or grant applicants will be required to submit a final report (due no later than April 20, 2016) documenting the study or project accomplishments to WYNPS, written for a broad audience and suitable for publication in our *Castilleja* newsletter, along with an accounting of how the funds were used.

Please send completed applications to:
Wyoming Native Plant Society, P.O. Box 2449, Laramie, WY 82073; or wynps@wynps.org

Wyoming Native Plant Society – Renewal and Ballot

Return to: Wyoming Native Plant Society – P.O. Box 2449 – Laramie, WY 82073

2015 WYNPS RENEWAL

Name: _____
Address: _____
_____
Email : _____

Check one: [ ] New member [ ] Renewing member
[ ] Check here if this is an address change.
[ ] Check here if you prefer to receive the newsletter electronically.

[ ] WYNPS annual membership: $10
[ ] WYNPS annual membership with scholarship support: $20 ($10 for membership and $10 for Scholarship fund)
[ ] WYNPS Lifetime membership: $300 ($150 for membership and $150 for Scholarship fund)
[ ] Sublette Chapter annual membership: $5.00
[ ] Teton Chapter annual membership: $5.00

Total enclosed: _____

2015 WYNPS BALLOT – Please mail for **receipt by January 31** or email wynps@wynps.org

Please vote for one person for each Officer position, and ONE OF TWO candidates for the At-Large position:

President ____ Karen Clause (Pinedale) Secretary/Treasurer ____ Vacant (Laramie)
Vice President ____ Brian Sebade (Sundance)
At-Large (2-year term) ____ John Coffman (Lander) *or* ____ Bob Giurgevich (Sheridan)
Write-in candidate and office: _____
[The second At-Large position is held by Walter Fertig (Phoenix, AZ), who will start his second year of a two-year term.]

Candidate Biographies

Karen Clause is Rangeland Management Specialist for the Natural Resources Conservation Service (NRCS) covering southwest Wyoming. She works in rangeland planning on private lands, the development, training, and use of Ecological Site Descriptions, wetland delineations, and providing leadership for NRCS' Plant Materials Program in Teton, Sublette, Lincoln, Sweetwater, and Uinta counties. She is a lifetime member of the Wyoming Native Plant Society, former At-Large member of the Board, and past-President of the newly formed Sublette Chapter of Wyoming Native Plant Society. She and family are avid hunters and native plant/outdoor enthusiasts.

Brian Sebade is a University of Wyoming Extension Educator in northeast Wyoming, focusing on sustainable management of rangeland resources, plus horticulture and youth development. He promotes native plant identification and awareness, weed management and identification, range monitoring and management, recognition of poisonous plants as well as edible ones, and pesticide certification. His background is in rangeland ecology and watershed management from the University of Wyoming, and he is an avid hunter, fisherman, and native plant/outdoor enthusiast.

John Coffman is the Southern Wyoming Land Steward for The Nature Conservancy overseeing land management at TNC's Red Canyon Ranch, Sweetwater River Preserve and the Winchester Ranch. He studied Geography in Texas and Ecology and Evolutionary Biology in New Mexico, worked for The Peregrine Fund and for the USDA Jornada Experimental Range researching rangeland restoration ecology. At the latter, he found a new passion for native plants. He promotes the importance of plant identification and biodiversity with other land managers, in the interest of finding new ways to balance biological diversity and agricultural production in Wyoming.

Bob Giurgevich is retired from the Wyoming Department of Environmental Quality, Land Quality Division in Sheridan. After the military, he got a PhD in Botany from the University of Georgia and served a Smithsonian Institution postdoctoral fellowship. Since retirement, he has often lead native plant lead hikes in the Big Horn Mountains, is active with the Big Horn Native Plant Society, supports Wyoming Native Plant Society hikes, and also pursues gardening, consulting, native plant landscaping and volunteer work.